



PermaNet® Quality Manual - 2020

PermaNet® 2.0
PermaNet® 3.0
www.permanet.com
Edition: March 2020

PermaNet® 
by VESTERGAARD

1 Quality Commitment

PermaNet® is designed and produced to be “Fit for Purpose”. PermaNet® long-lasting insecticidal nets (LLINs) meet the customer needs whilst adhering to the established WHO product specifications.

Vestergaard promotes its deliver-with-precision value throughout its supply chain with the implementation of quality tools, control plans and management systems to ensure optimum alignment with the goal to fulfil customers’ requirements.

Vestergaard works towards high quality PermaNet® products with focus on continuous improvements, preventive actions and conformance to certified systems with adherence to relevant international standards.

Production sites and key raw material suppliers are ISO 9001 certified as a minimum requirement. Key laboratories engaged in insecticide analysis and textile testing for quality control are ISO IEC 17025:2017 accredited¹. Shipments undergo an acceptance inspection and quality-assurance testing procedure in accordance with ISO 2859 / ISO3951 and WHO guidelines for procuring public health insecticide before they are submitted to the customer². Our two manufacturing facilities in Vietnam were inspected by the World Health Organization (WHO) Prequalification team. The facilities were deemed highly compliant against audit requirements. The Public inspection reports are available on the WHO website. <https://www.who.int/pq-vector-control/resources/whopir/en/>



Customers and suppliers sometimes differ in their definition of quality. Such differences are an invitation to trouble. To most customers, quality means those features of product or service that respond to customer needs. In addition, quality includes freedom from failures, plus good customer service if failures do occur. One comprehensive definition for the above is ‘Fitness for Purpose.’

Joseph M. Juran³



2 Product Description

PermaNet® 2.0 by Vestergaard is made of polyester fabric treated with WHO-approved deltamethrin, using the recognized PermaNet® coating technology. PermaNet® 2.0 was submitted for WHOPES evaluation in 2003, given a full recommendation for malaria prevention and control in 2009, and converted to WHO Prequalification listing in December 2017.

PermaNet® 3.0 PBO LLIN is the world’s first new generation LLIN for use in areas with pyrethroid-resistant malaria vectors. The sides are made from polyester impregnated with WHO-approved deltamethrin using the approved PermaNet® coating technology. The roof is made from polyethylene with deltamethrin and the synergist piperonyl butoxide (PBO), using PermaNet® incorporation technology. PBO works by blocking the metabolic enzymes that mosquitoes use to break down the insecticide, allowing the deltamethrin to kill resistant mosquitoes that are affected by these mechanisms. PermaNet® 3.0 was given an interim recommendation for malaria prevention and control in 2008. In February 2014, the WHO’s Vector Control Advisory Group evaluated and supported the evidence for the product claim and recognized PermaNet® 3.0 as “first-in-class” in a new net category. The product’s WHOPES recommendation was converted to a WHO Prequalification listing in January 2018.

PermaNet® 2.0 and PermaNet® 3.0 are listed by WHO Prequalification (PQ) for vector control products:

PermaNet® 2.0

PQT-VC Reference: 005-001

https://www.who.int/pq-vector-control/prequalified-lists/permanet_2.0/en/

PermaNet® 3.0

PQT-VC Reference: 005-002

https://www.who.int/pq-vector-control/prequalified-lists/permanet_3.0/en/

¹ ISO IEC 17025 accreditation in Vestergaard Vector control Laboratories covers chemical analysis and textile testing. The accreditation status implies that the results provided from these laboratories are recognized under ILACMRA, accepted in the 36 member countries and economies, including Kenya and South Africa (http://www.ilac.org/members_contact_details.html).

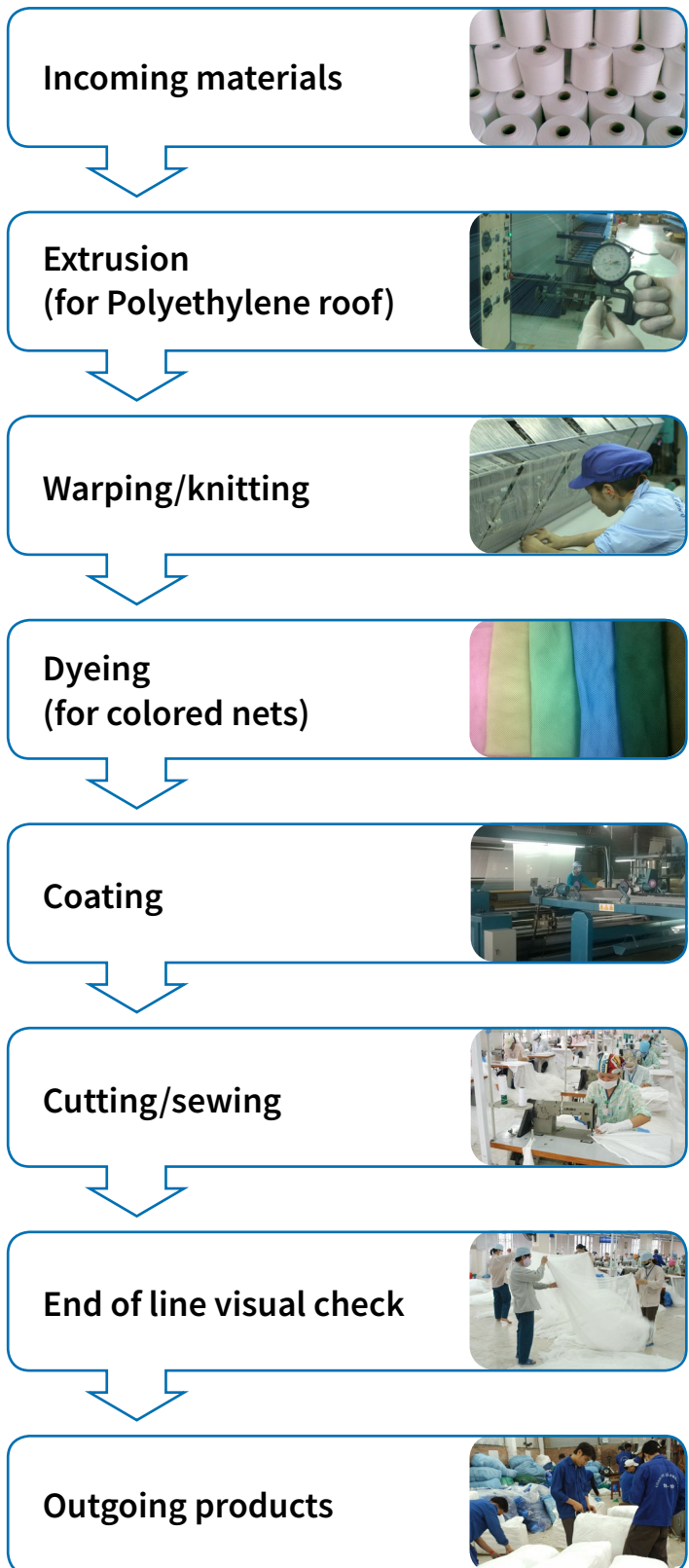
² Chapter 8. QUALITY CONTROL: PRE-SHIPMENT AND ARRIVAL INSPECTION in WHO Guidelines for procuring Public Health Insecticides.

³ Juran’s Quality Handbook 6 edition. McGraw Hill: Joseph Moses Juran was a 20th century management consultant who is principally remembered as an “evangelist for quality and quality management”, having written several influential books on these subjects.

3 Vestergaard Quality Management System

3.1 Quality steps in supplying PermaNet® LLINs

MANUFACTURING PROCESS



QUALITY CONTROL

- ✓ Incoming quality control of critical materials
- ✓ Yarn: Denier and tenacity
- ✓ Chemical purity

- ✓ Deltamethrin and PBO contents
- ✓ Yarn denier and tenacity
- ✓ Color shade

- ✓ Defect number in grey fabric

- ✓ Colour shade match test

- ✓ Dimensional stability to washing
- ✓ Bursting strength
- ✓ Mesh count
- ✓ Weight (GSM)
- ✓ Deltamethrin content
- ✓ Bioefficacy

- ✓ Netting screened for holes and dirt marks
- ✓ Work in Progress (panel) dimension check

- ✓ Visual and conformity inspection
- ✓ Dimension control

- ✓ Quantity inspection
- ✓ Bale size control

Figure 1. Quality control steps embedded in the PermaNet® LLINs manufacturing process

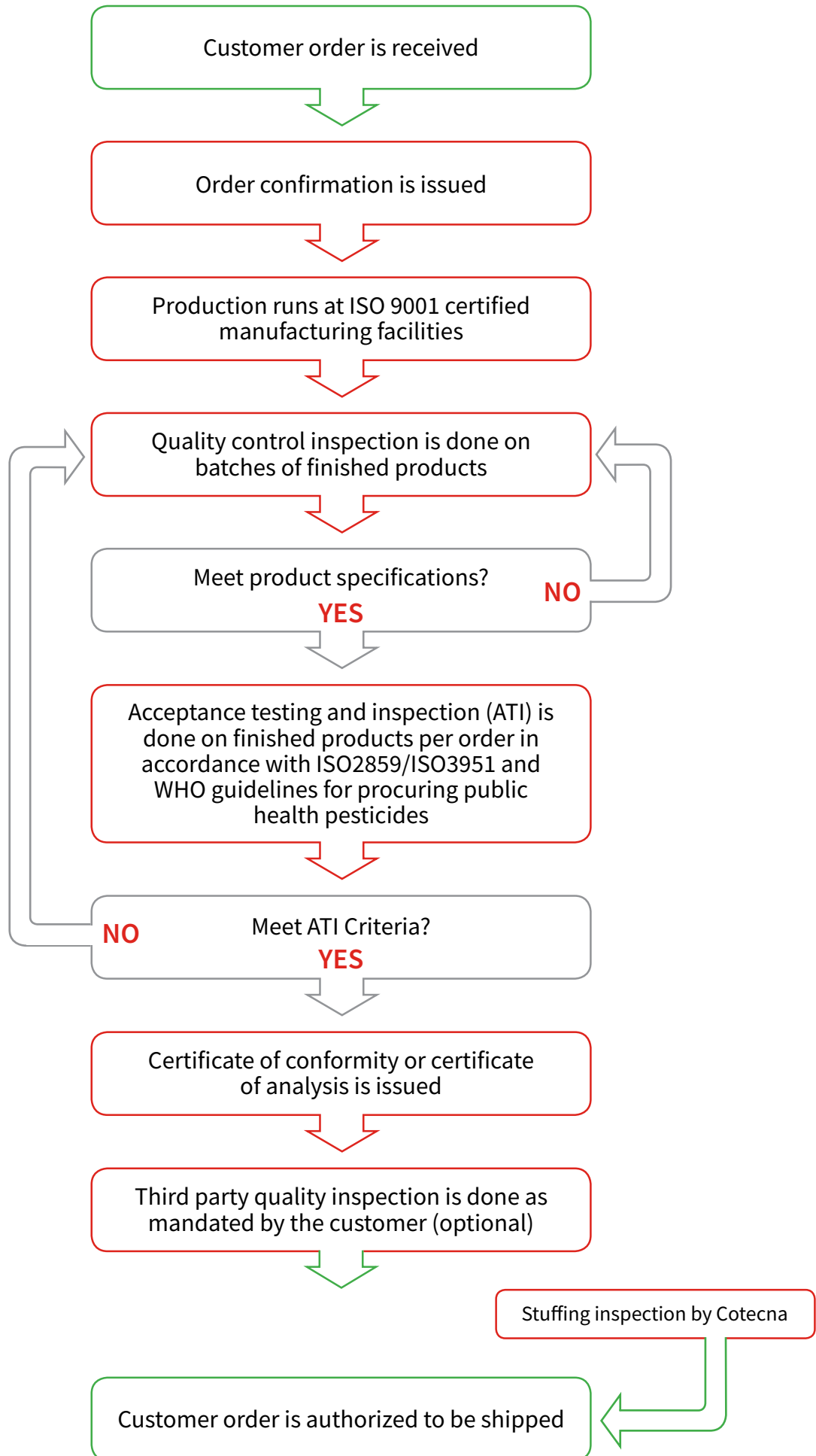


Figure 2. PermaNet® LLINs – Key quality checks from order to shipment

3.2 Acceptance testing and inspection on finished goods

Vestergaard applies the most widely accepted sampling system, ISO 2859 and ISO 3951, for controlling the quality of the shipment before submitting it to the customer or to a third-party inspection agency. The quality assurance sampling plan fully covers the range of critical characteristics of PermaNet® LLIN products.

Tests are conducted by ISO/IEC 17025:2017 accredited laboratories and/or by WHO collaborating centres.



Figure 3. Analysing deltamethrin content with High Performance Liquid Chromatograph in Vestergaard Vector Control Laboratory in Hanoi, Vietnam



Figure 4. Measuring denier of yarn in Vestergaard Vector Control Laboratory in Hanoi, Vietnam to ensure only the highest quality yarn is used for PermaNet® LLINs production



Figure 5. Measuring bursting strength of finished net in the Acceptance Testing and Inspection scheme



Figure 6. Bioefficacy testing of PermaNet® at Vestergaard-NMIMR Vector Labs in Accra, Ghana following WHO guidelines



Figure 7. Inspection for workmanship and appearance in the Acceptance Testing and Inspection scheme

3.3 Certificate of Conformity

Vestergaard provides its customers with a Certificate of Conformity (COC) for each shipment with supporting facts and data provided in the Certificate of Analysis (COA) and the inspection report (IR). An example of a COC is provided in Annex 2.

4 Reference Sample

Reference samples representative of every shipment are kept with their full history at the manufacturing unit for a period of its shelf life plus two years.

5 Traceability

Every PermaNet® by Vestergaard label bears a batch code that can trace the complete production history including raw material lots, processing history, and detailed quality control data as well as a reference sample.

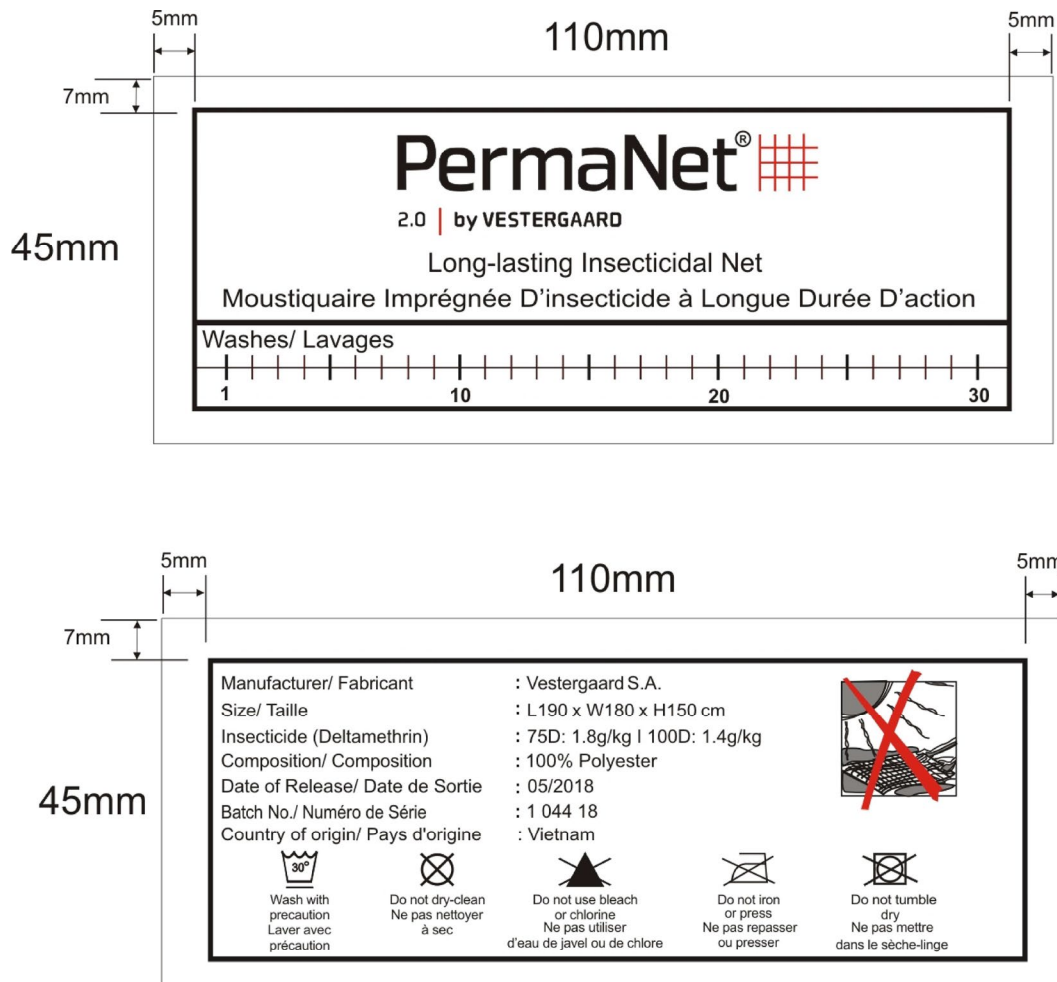


Figure 8. Example of a PermaNet® Label (front and back)

6 Customer Feedback

Vestergaard values customer feedback as an opportunity for improvement. Where justified, Supplier Corrective Action Response (SCAR) is implemented and its follow-up is communicated to customer. Feedback is provided within one week from receipt of a customer request.

Vestergaard handles customer feedback and complaints with responsiveness and values this as an opportunity for improvement to prevent any future occurrences.

7 PermaNet® Service Package

Post market surveillance for health products aims to monitor and ensure safety and efficacy of the products in use. A laboratory testing service is provided free of charge to customers under the PermaNet® service package, which covers an evaluation of insecticide content, bioavailability, and assessment of fabric integrity. PermaNet® LLIN products should be sent as a complete net with the original label showing a legible production code. The results of the analysis will be available within four weeks from the date of submission to the nearest Vestergaard office or laboratory.

PermaNet® by Vestergaard is designed to last at least 20 WHO standard washes and 3 years of field use; however, the lifetime largely depends on usage and local field conditions. Vestergaard does not stand liable for differences in the lifetime of PermaNet® with field use, the differences arising primarily due to potentially harsh washing conditions, exposure to UV rays, soiling, etc., under field conditions.

8 A Responsible Supply Chain

Vestergaard ensures its suppliers and manufacturing partners act as responsible and ethical companies in strict accordance with Vestergaard Code of Conduct.

Since 2017, Vestergaard manufacturing partners are certified SA8000® for their social accountability. The leading global certification ensures the highest quality standards of social compliance and fair treatment of workers.

Vestergaard also strives to find ways to produce with less usage of water, energy resources, and waste.

PermaNet® manufacturing site located in South Vietnam is accredited ISO14001:2015 since 2017. Vestergaard is also implementing a robust environmental management system at its PermaNet® manufacturing site located in North Vietnam with the goal to obtain the ISO 14001:2015 accreditation by the end of 2020.

